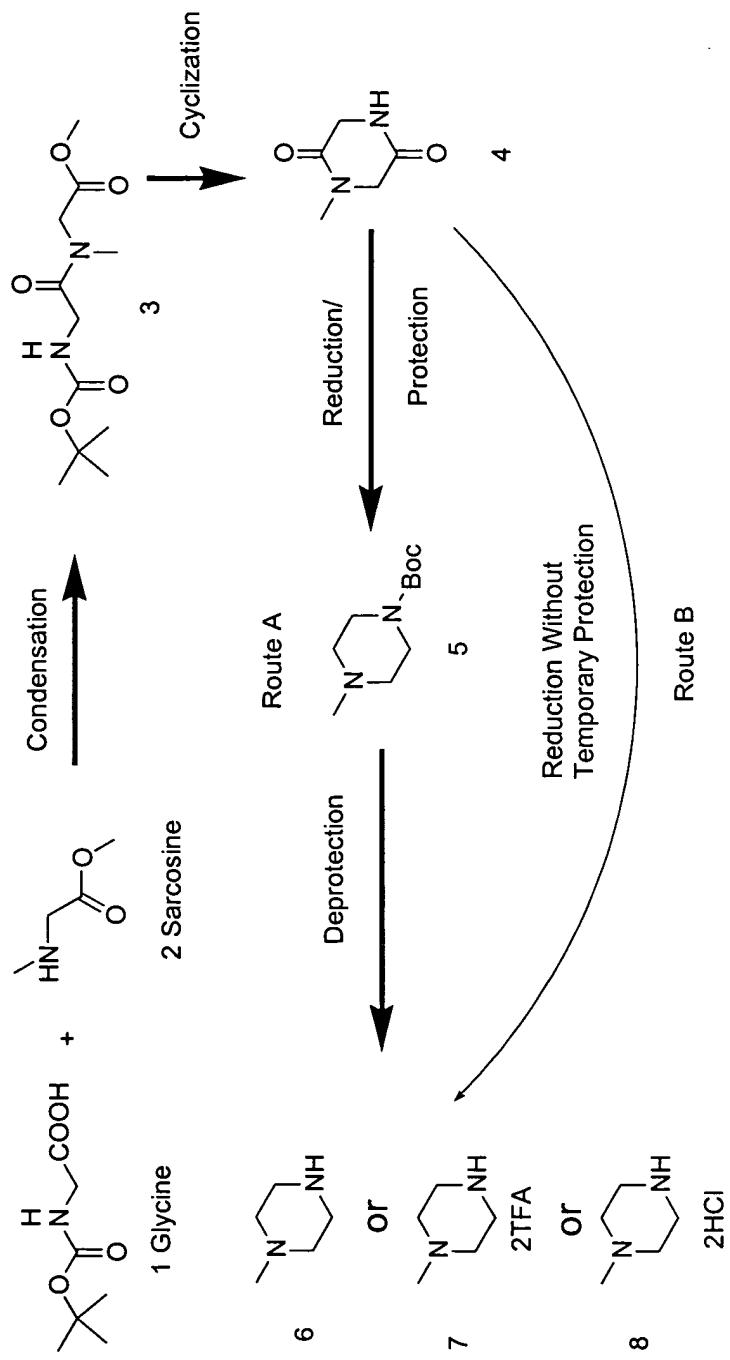
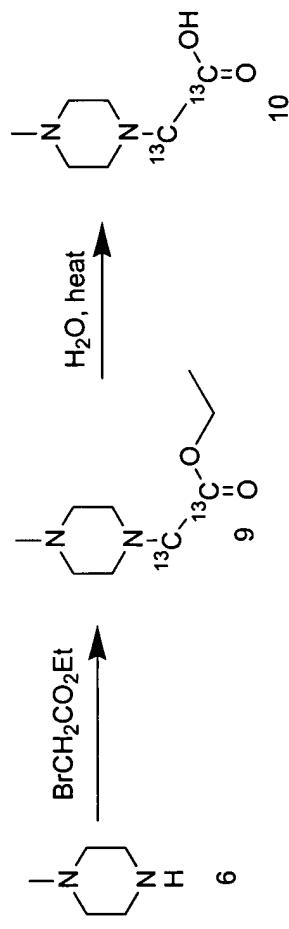


**Figure 1**  
**Scheme For The Synthesis Of N-Methyl Piperazine**



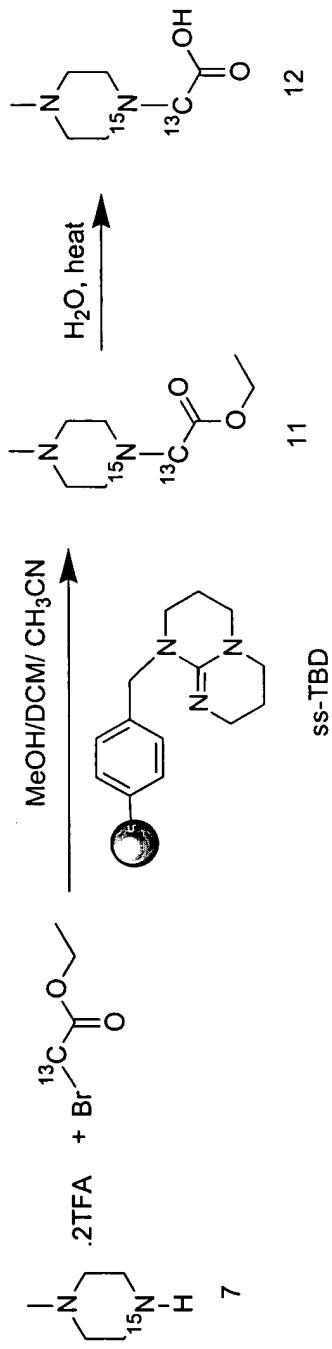
**Figure 2A**

Scheme A For The Synthesis Of N-Methyl Piperazine Acetic Acids



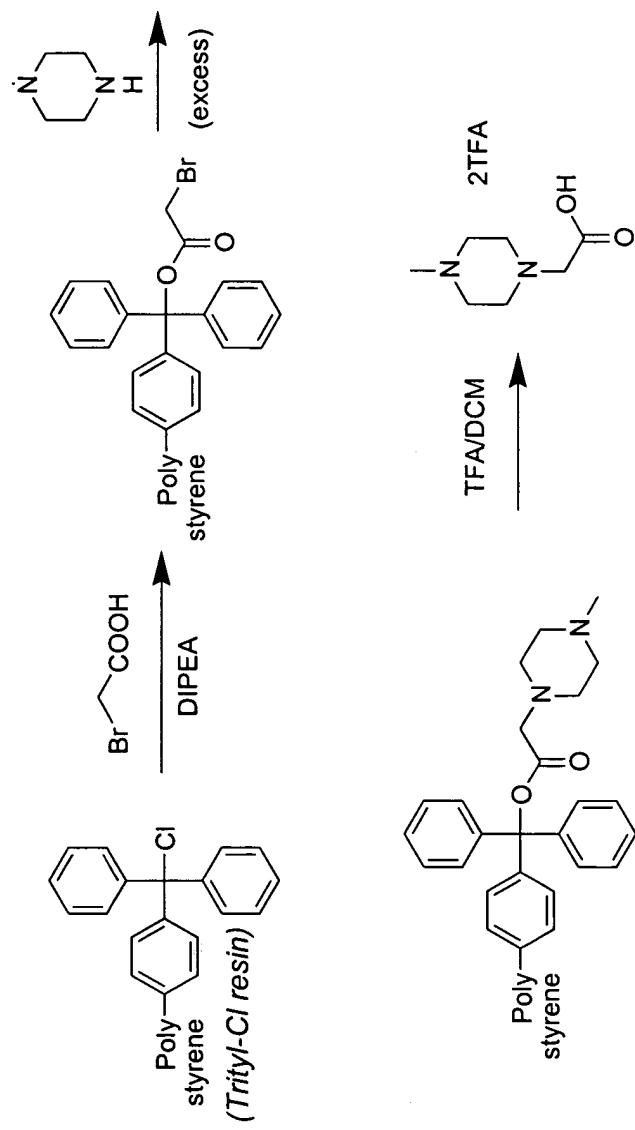
**Figure 2B**

Scheme B For The Synthesis Of N-Methyl Piperazine Acetic Acids



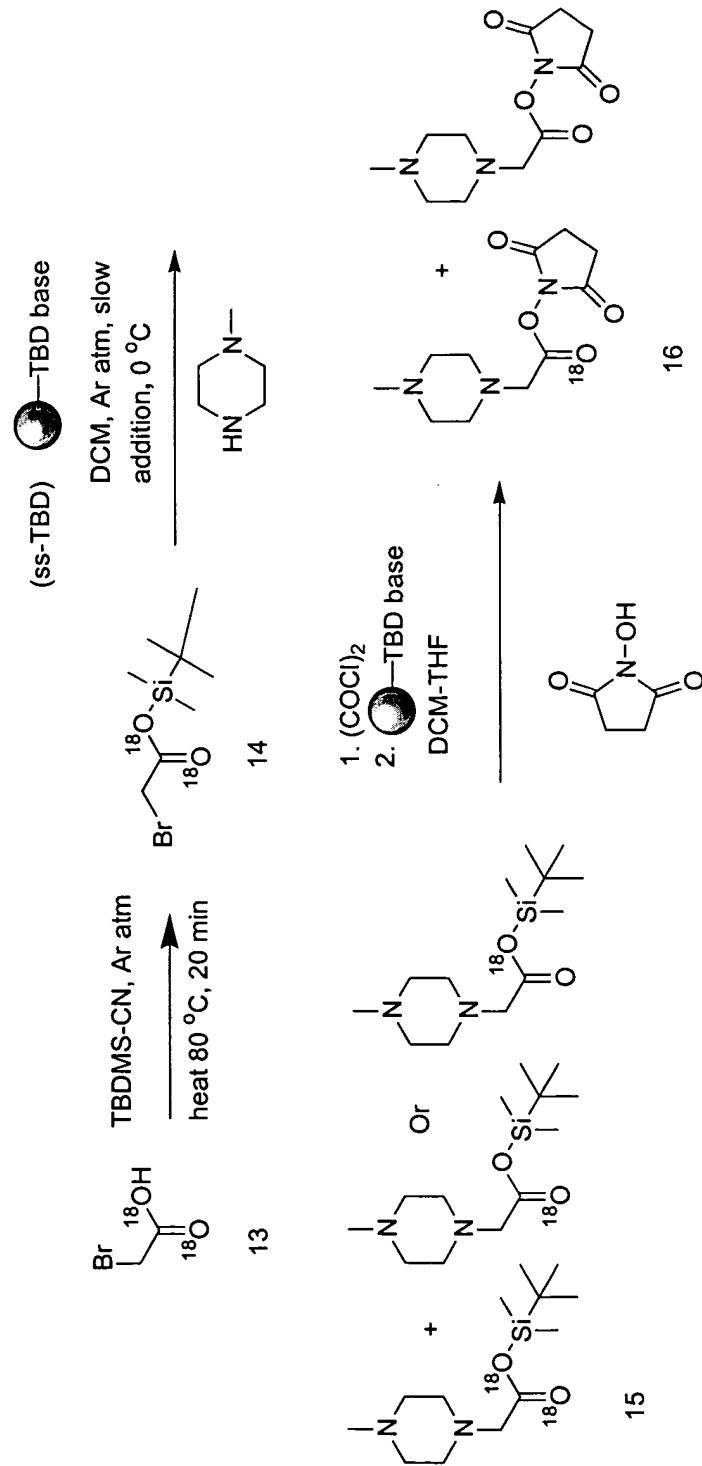
**Figure 2C**

**Scheme C For The Synthesis Of N-Methyl Piperazine Acetic Acids**



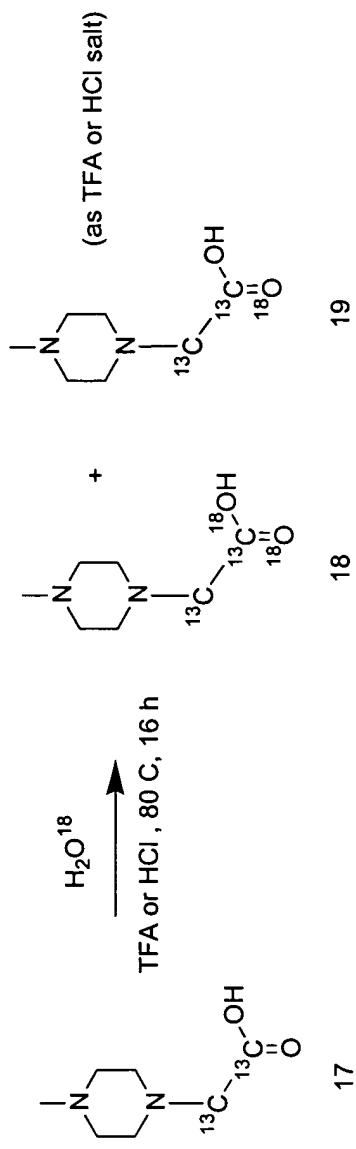
**Figure 3A**

**Scheme A For The Synthesis Of  $^{18}\text{O}$  Labeled N-Methyl Piperazine Acetic Acids**



**Figure 3B**

Scheme B For The Synthesis Of  $^{18}\text{O}$  Labeled N-Methyl Piperezine Acetic Acids



17

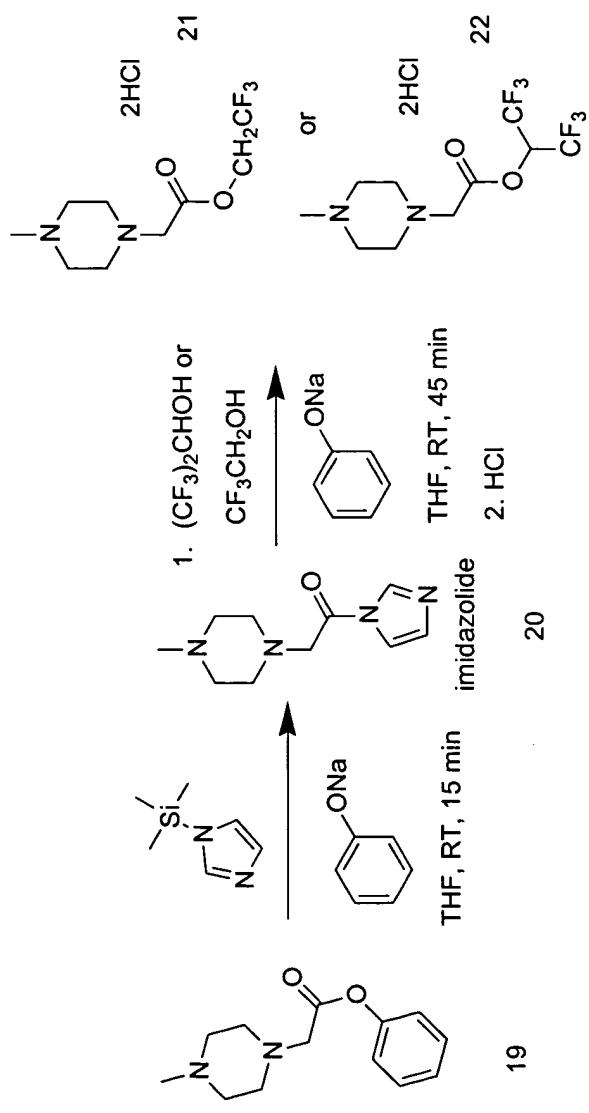
18

19

17

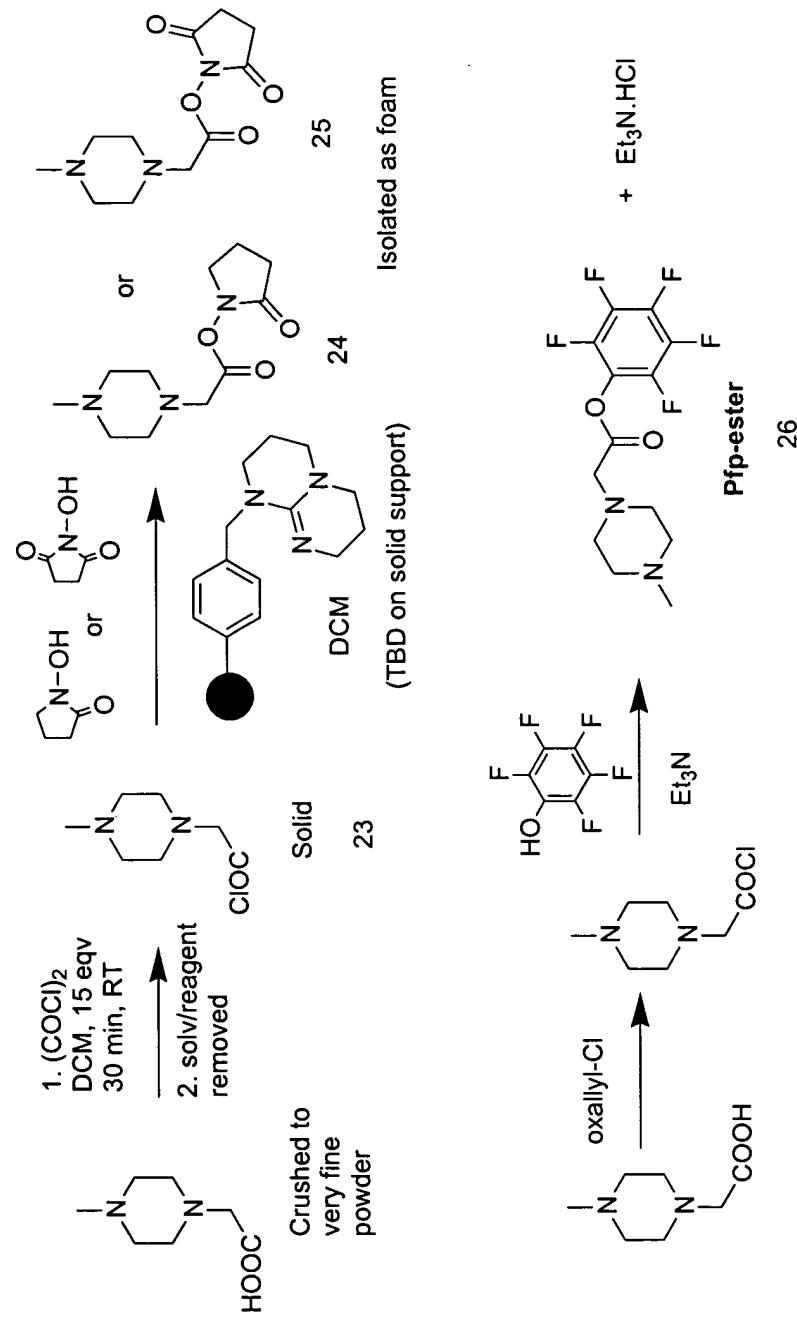
**Figure 4A**

## Scheme A For The Synthesis Of Various Active Esters Of N-Methyl Piperazine Via Imidazolide Formation



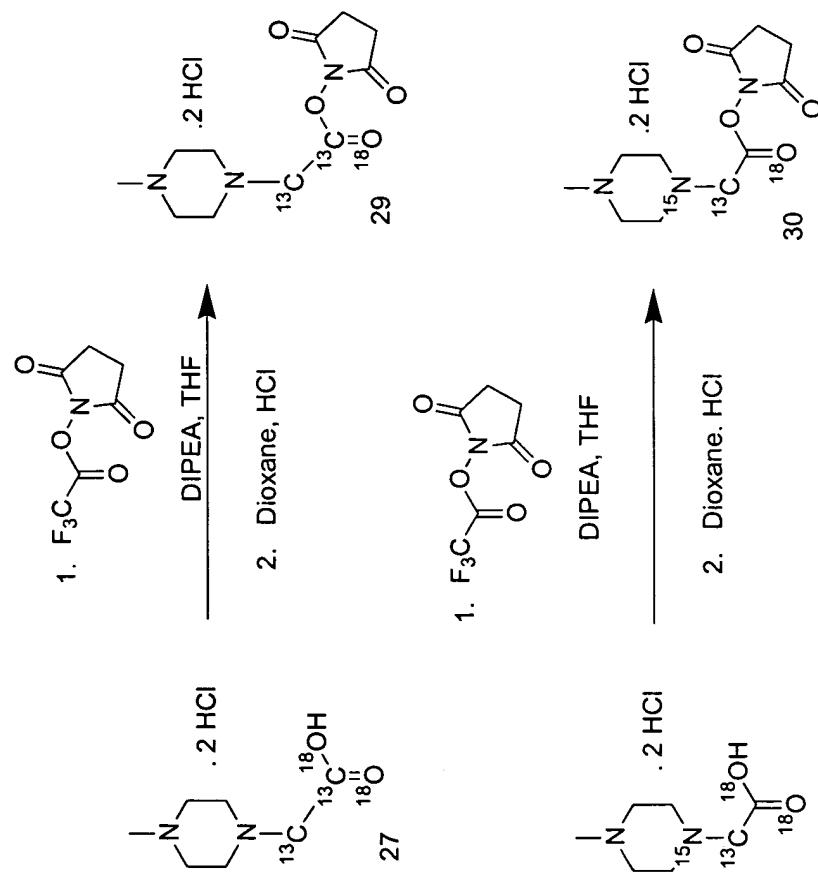
**Figure 4B**

**Scheme B For The Synthesis Of Various Active Esters Of N-Methyl Piperazine  
Via Oxallyl Chloride**

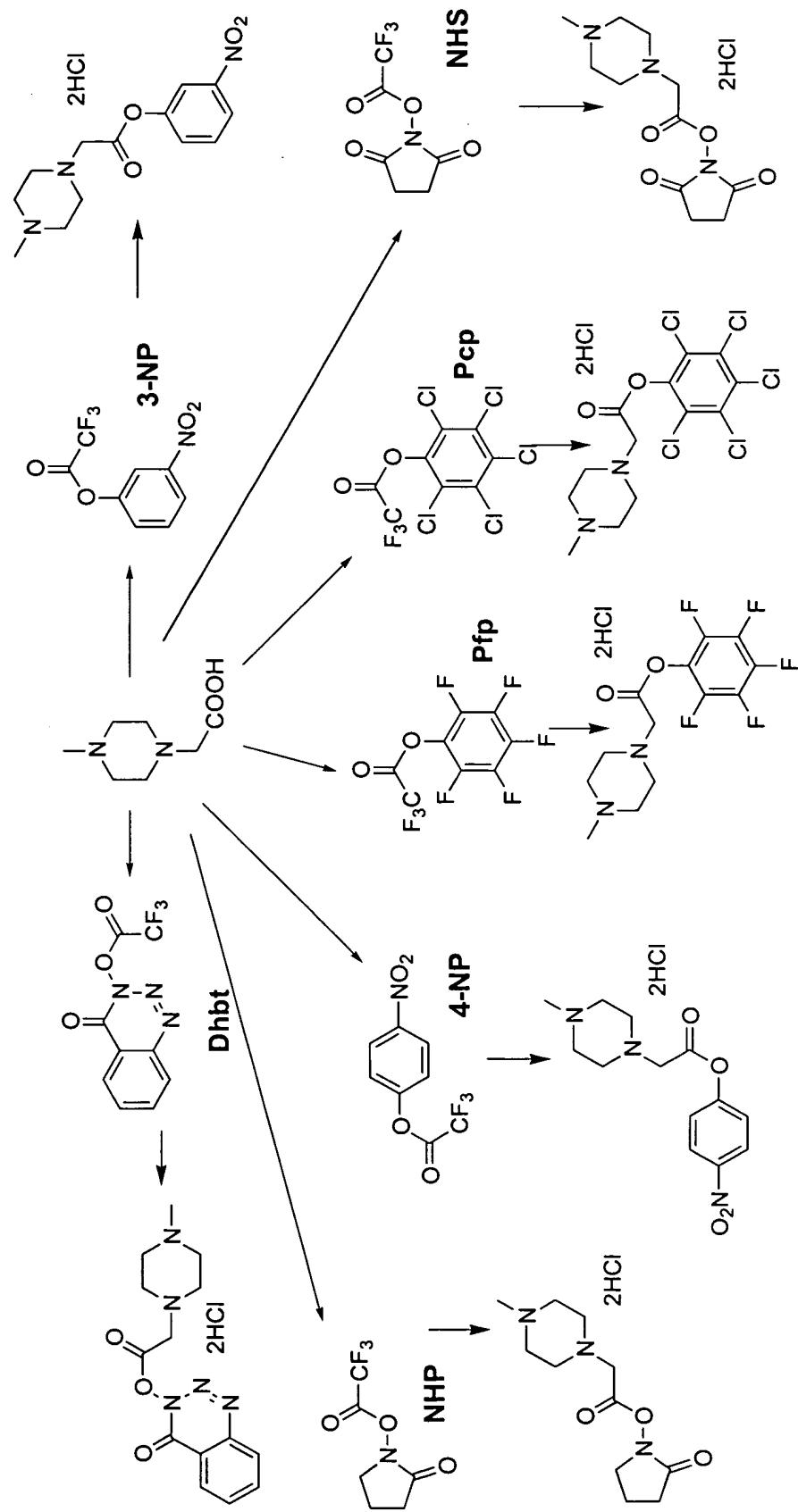


**Figure 4C**

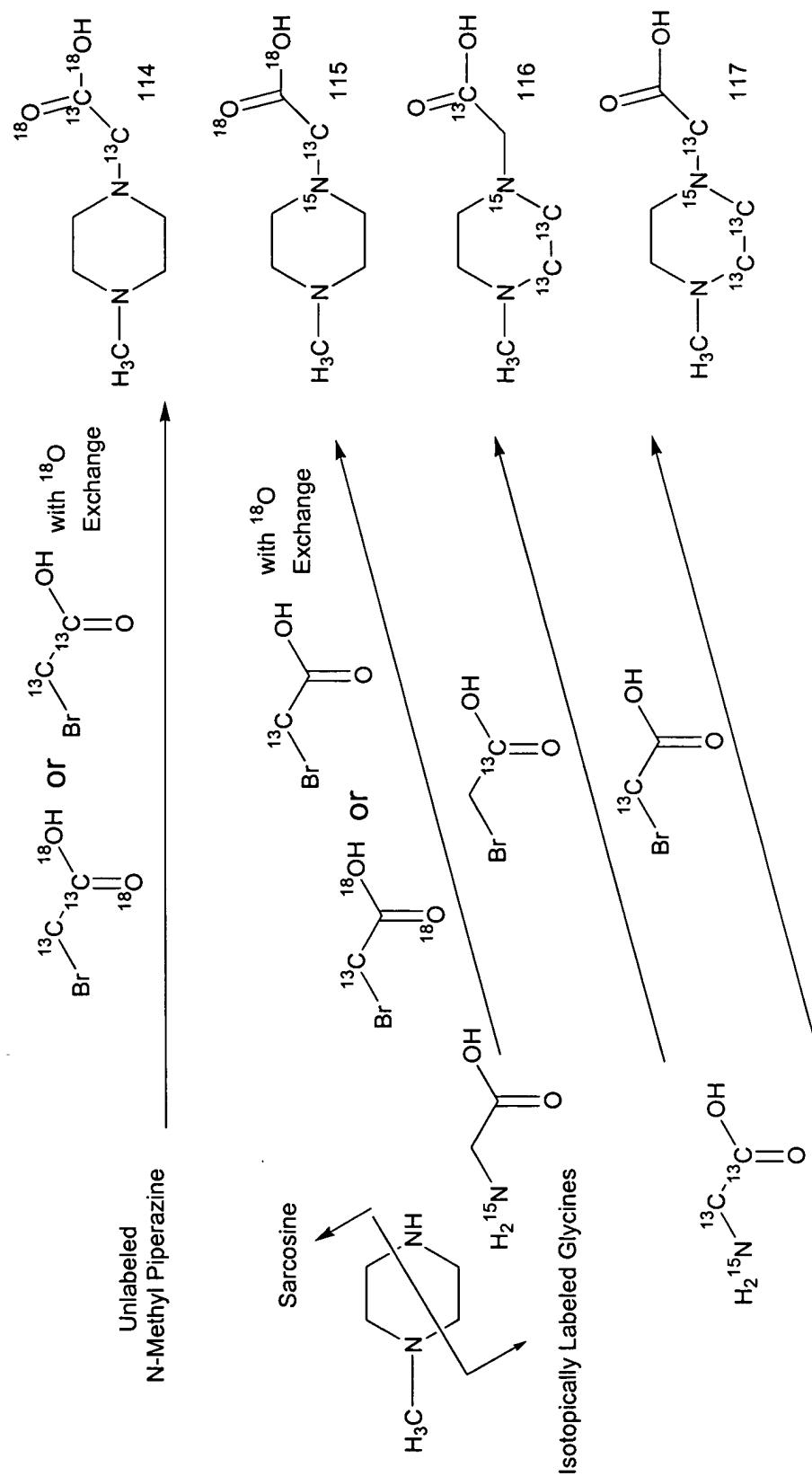
**Scheme C For The Synthesis Of Various Active Esters Of N-Methyl Piperazine  
Via Trifluoroacetate Ester**



**Figure 4D**  
**Scheme For The Synthesis Of Various Active Esters Of N-Methyl Piperazine**  
**Via Trifluoroacetate Esters**



**Figure 5A**  
Isotopic Pathway For Prepared N-Methyl Piperazine Acetic Acids



**Figure 5B**  
Fragmentation of the Isobaric Label Set

